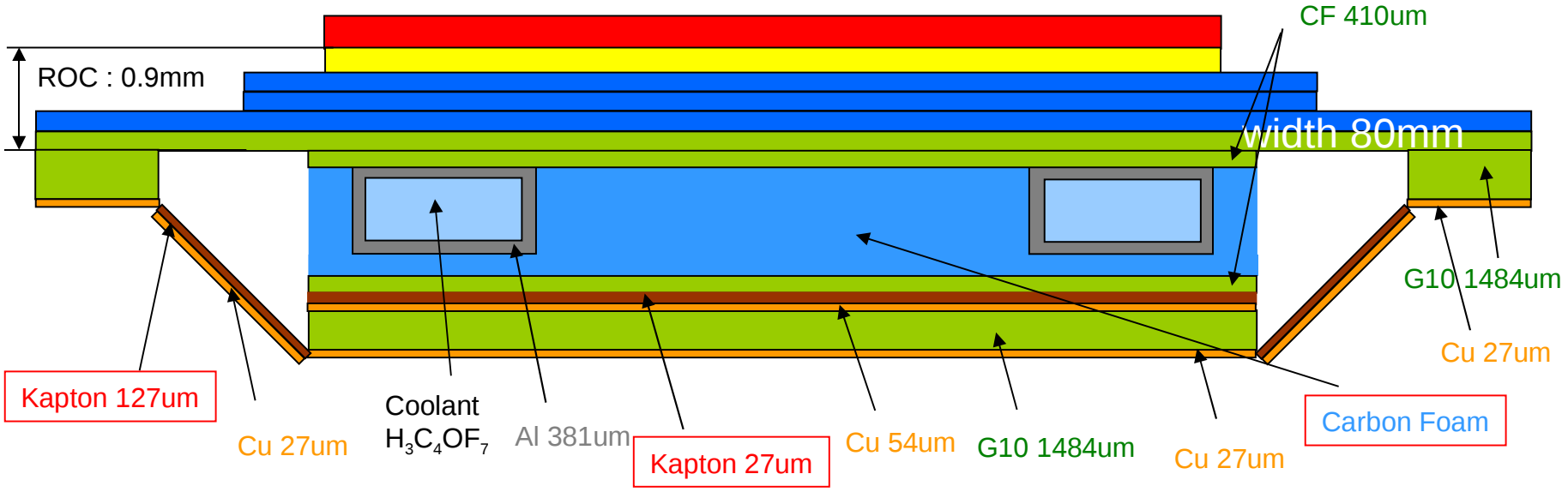
Radiation Length Distribution with Current Geometry of Barrel

30th Jun 2009

Maki Kurosawa

Modified Medium for Strip Layer (ROC3 ½ oz)



Material (radl(cm))	Radiation Length (%)
Si (radl:9.36)	0.67 (625um)
Cu (radl:1.43)	1.04 (149um)
G10 (radl:19.4)	1.15 (750+1484=2,234um)
CF (radl:26.6)	**0.31 (820um)**
$H_3C_4OF_7$(radl:30.84)	**average 0.39 (1207um)**
kapton (radl:28.57)	0.01 (27um)
K3 (radl:213)	0.20 (4,200um)
Al (radl:8.9)	average 0.45 (407um)
Sum	**4.22**

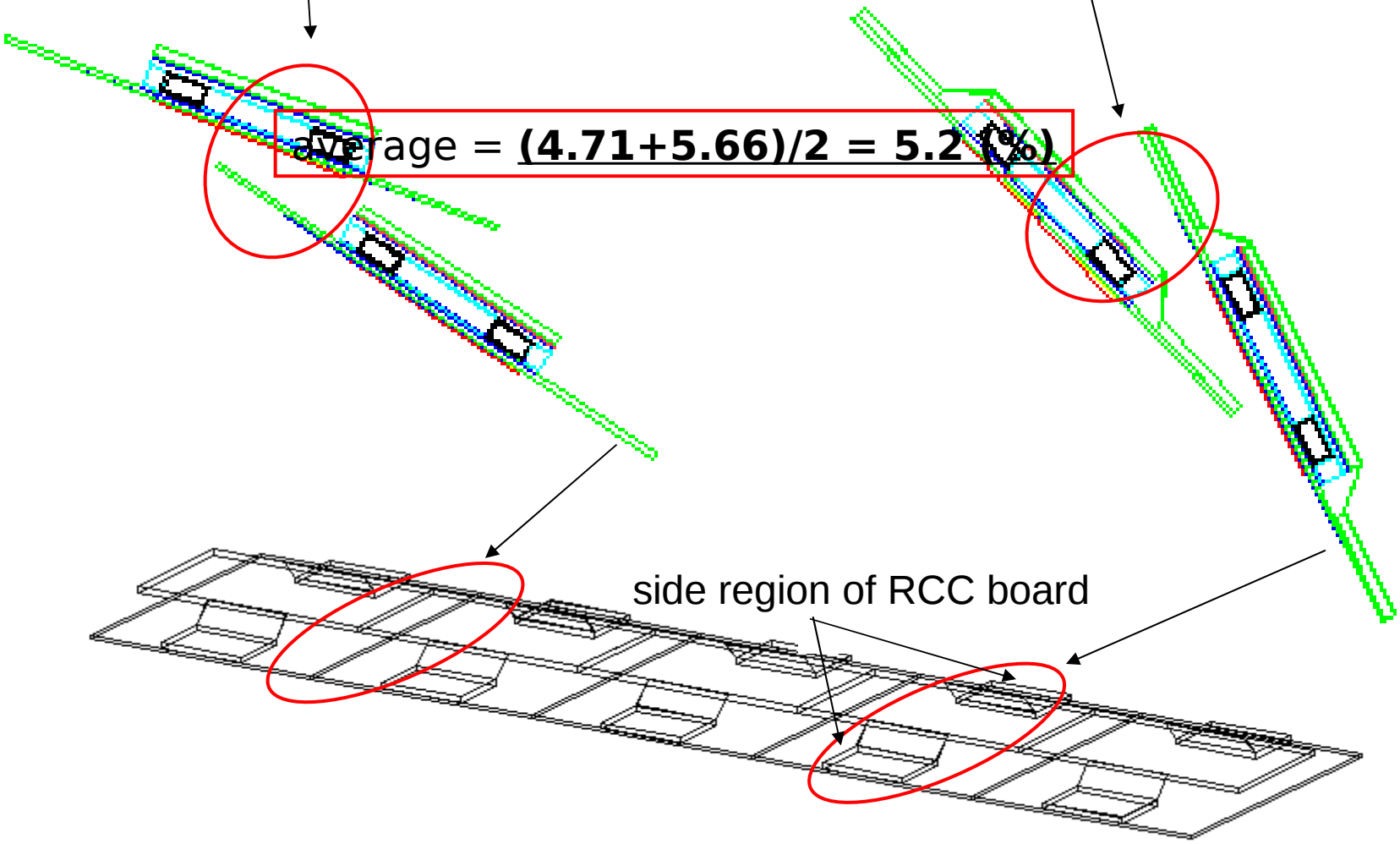
total 1 = **4.22 + (0.29+1.15)(overlap-RCC edge) = 5.66 (%)**
total 2 = **4.22 + (0.11+0.38)(overlap-RCC edge) = 4.71 (%)**

Amount of Material

= **4.22 + (0.11+0.38)(overlap-RCC edge) = 4.71 (%)**

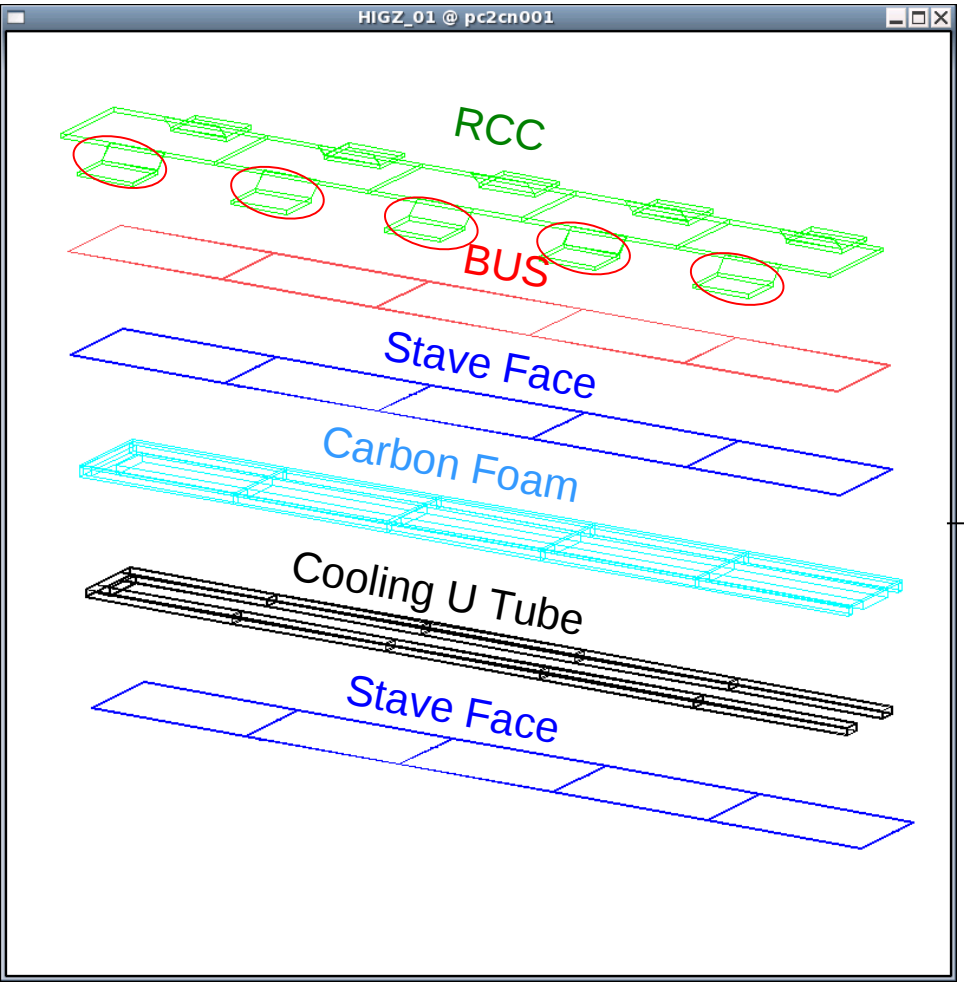
total 1 = **4.22 + (0.29+1.15)(overlap-RCC edge) = 5**

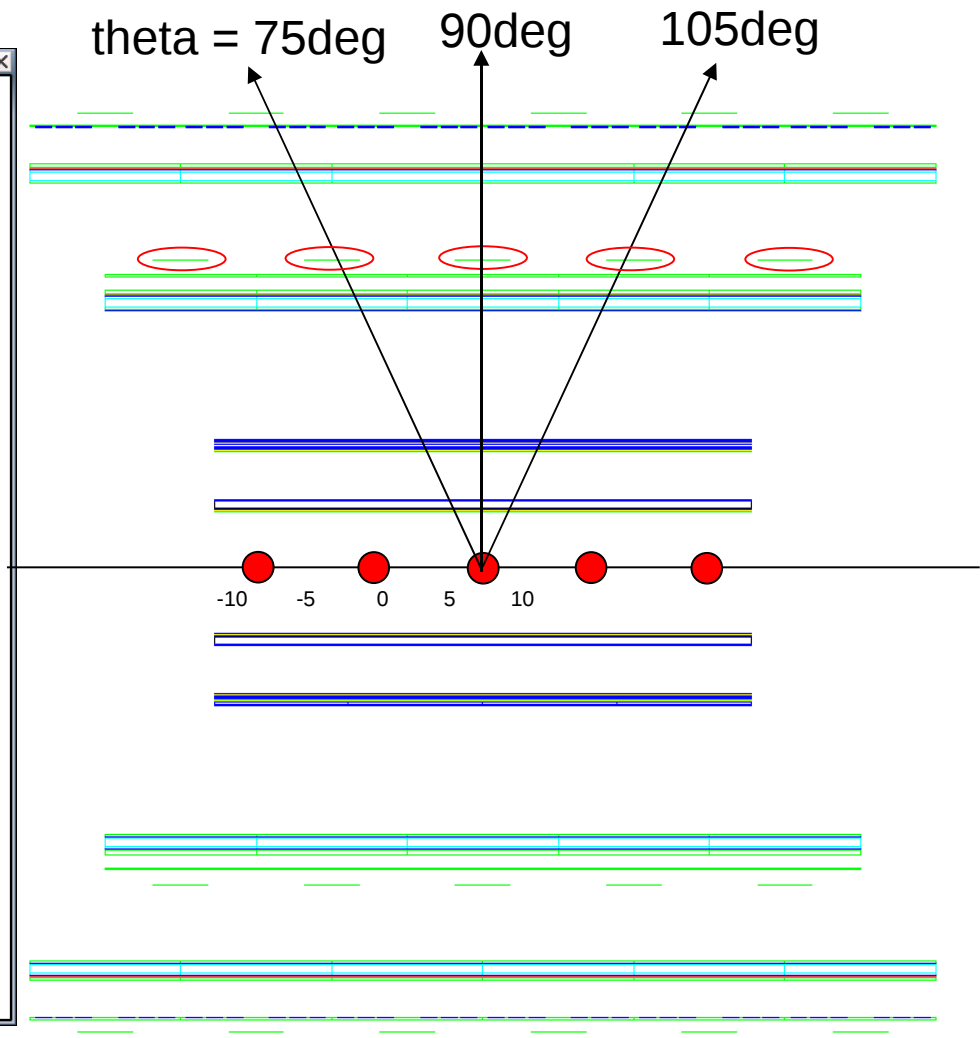
average = **(4.71+5.66)/2 = 5.2 (%)**



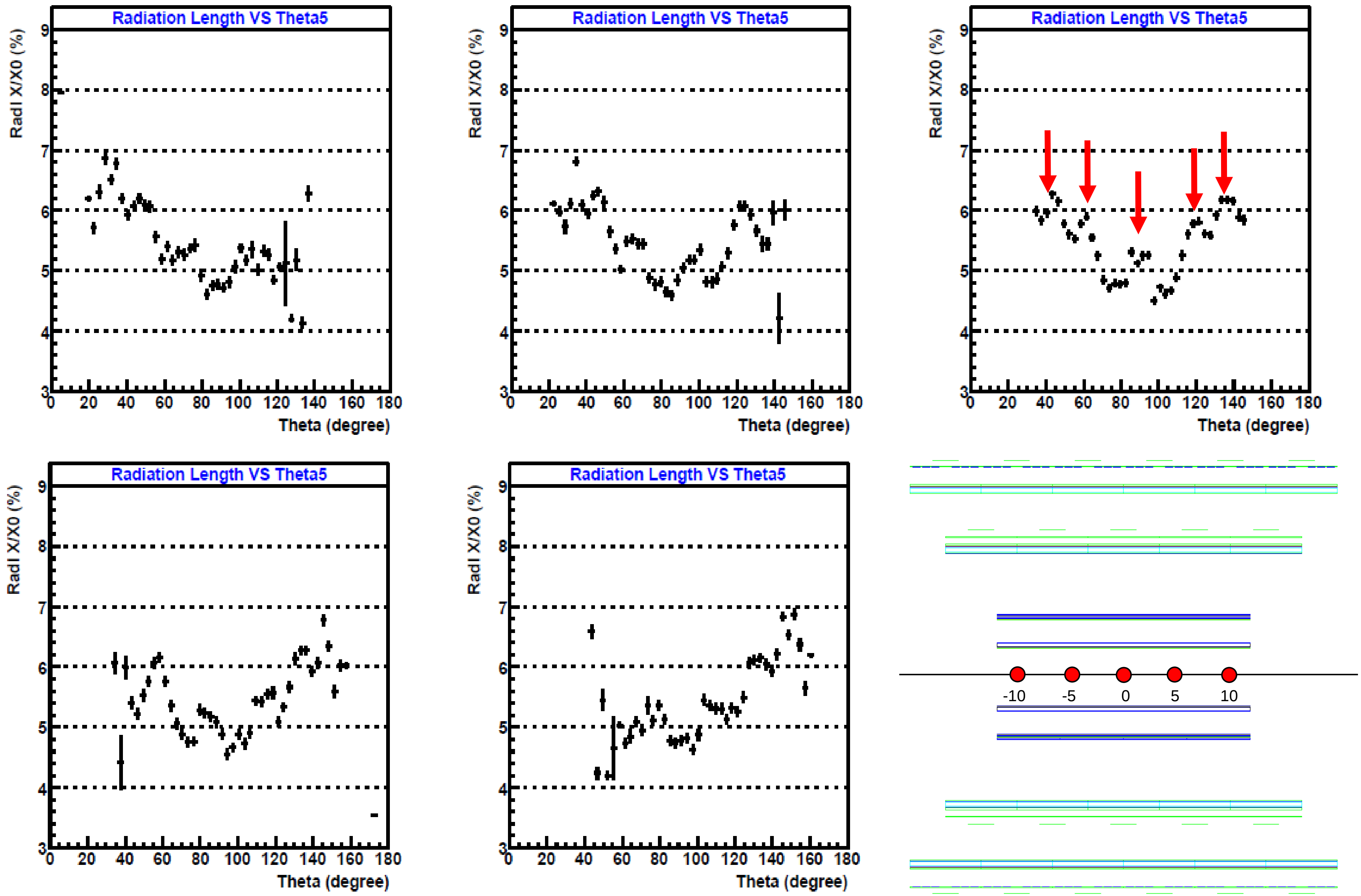
3D View of Stripixel Stave (Layer 3)

PISA code (Layer 3)



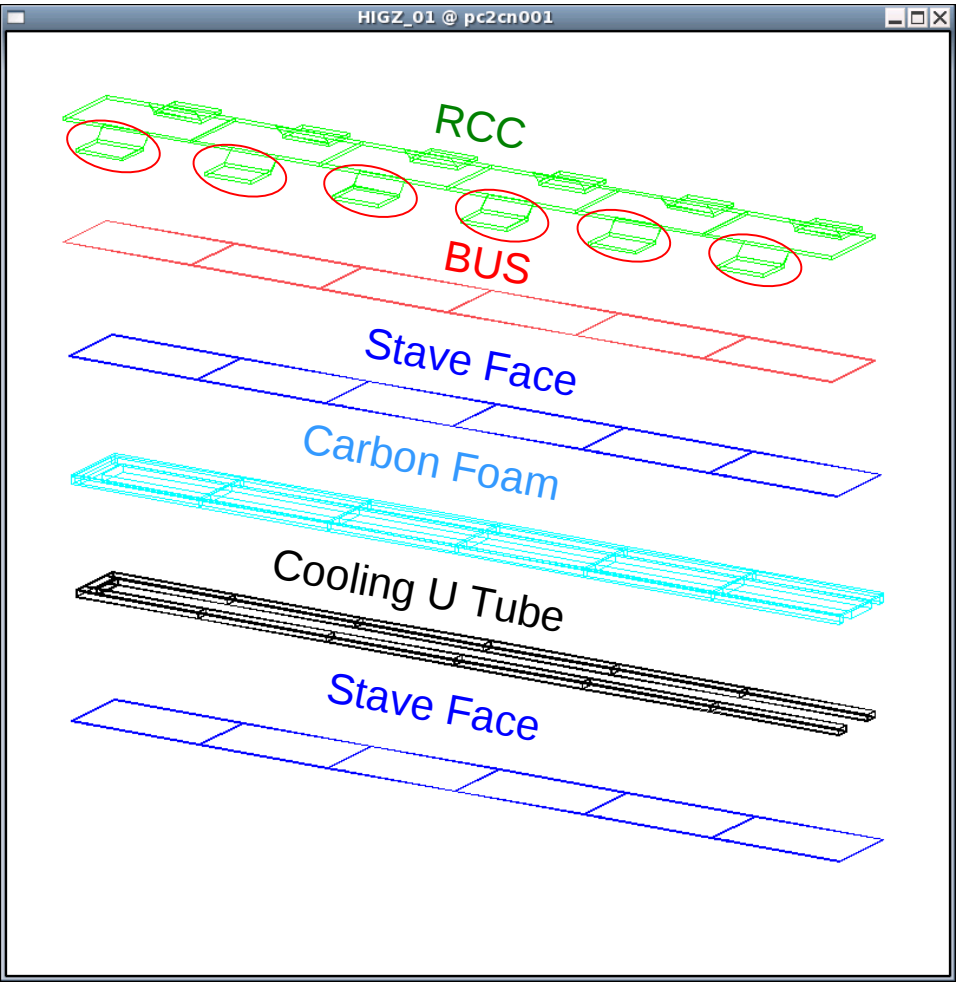


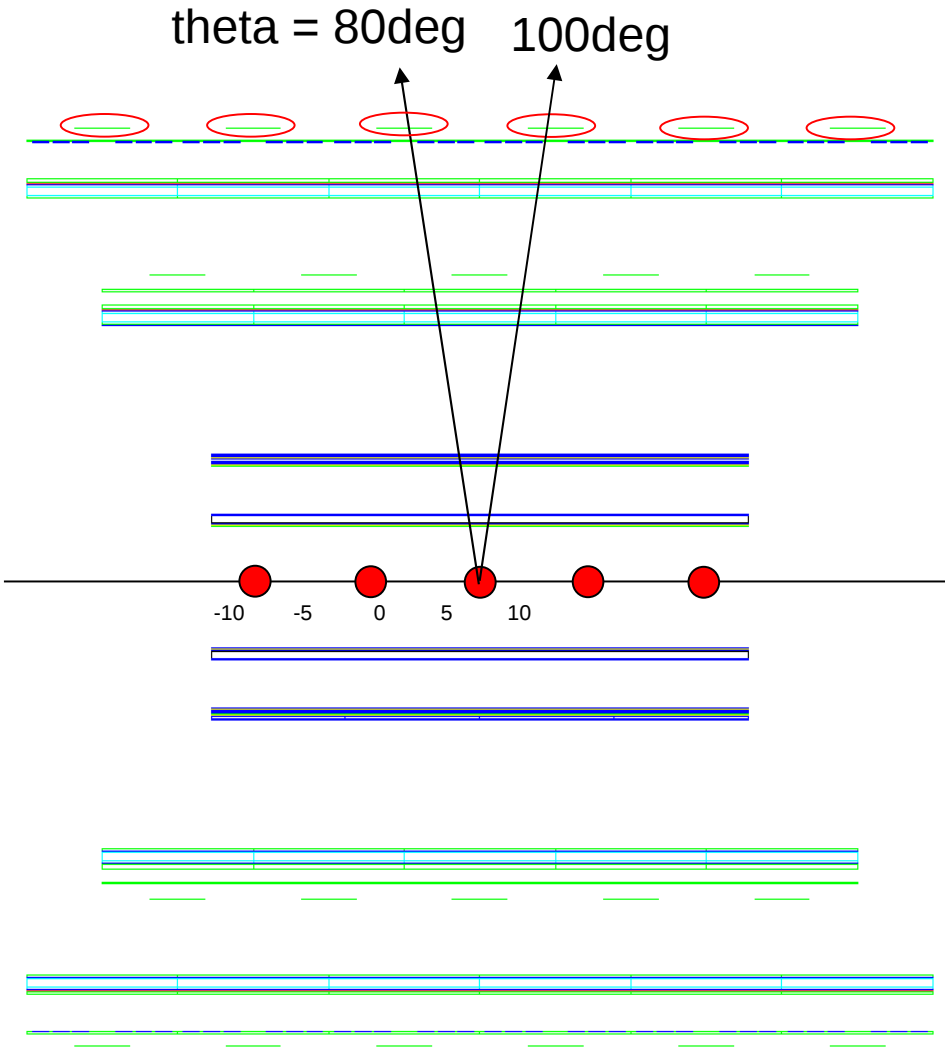
Radiation Length Distribution for Layer 3 (Current Geometry)



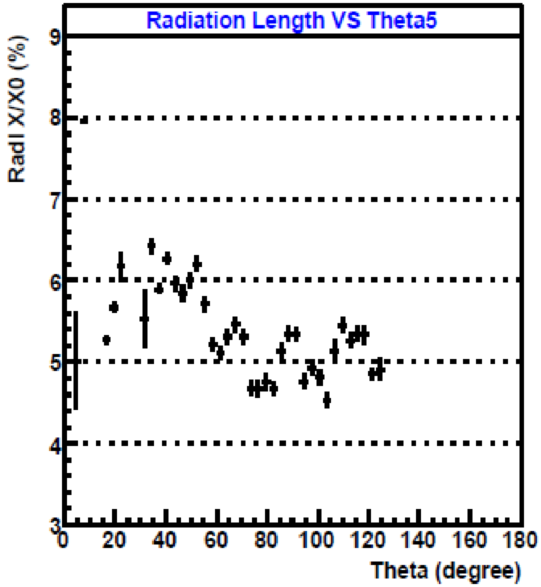
3D View of Stripixel Stave (Layer 4)

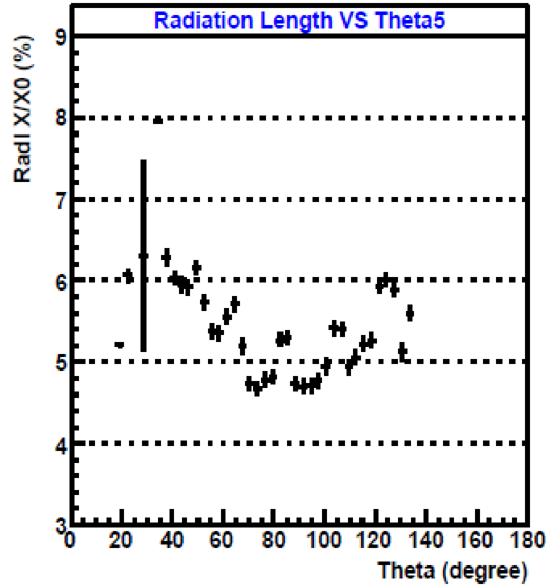
PISA code (Layer 4)

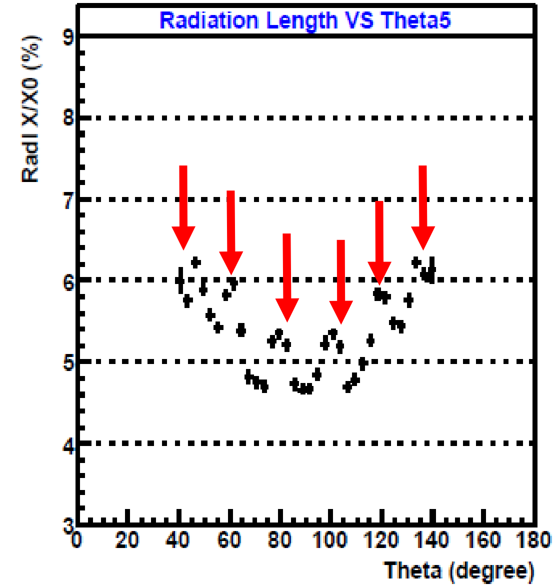


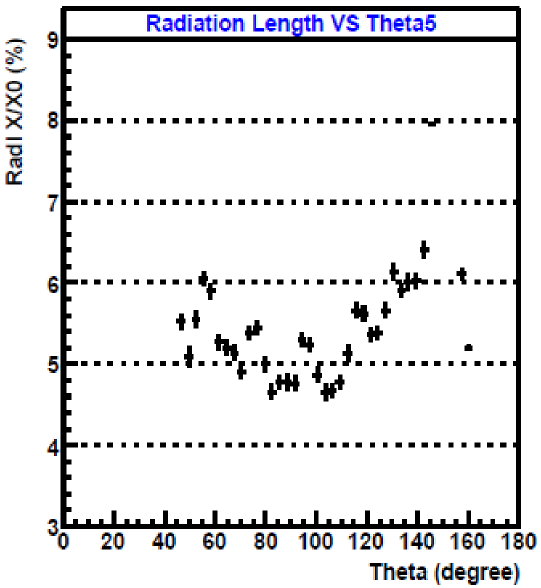


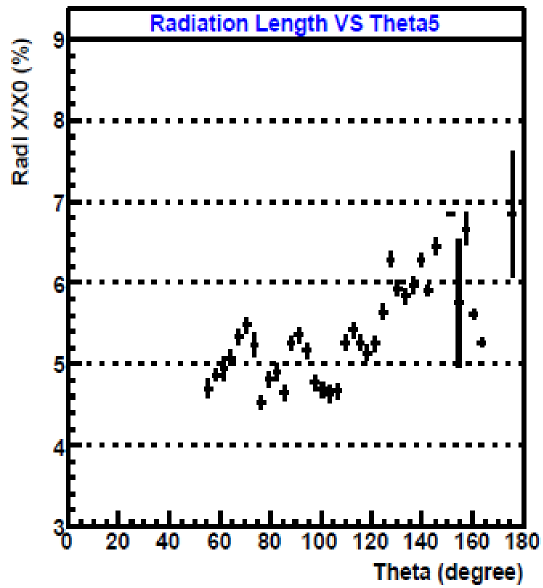
Radiation Length Distribution for Layer 4 (Current Geometry)

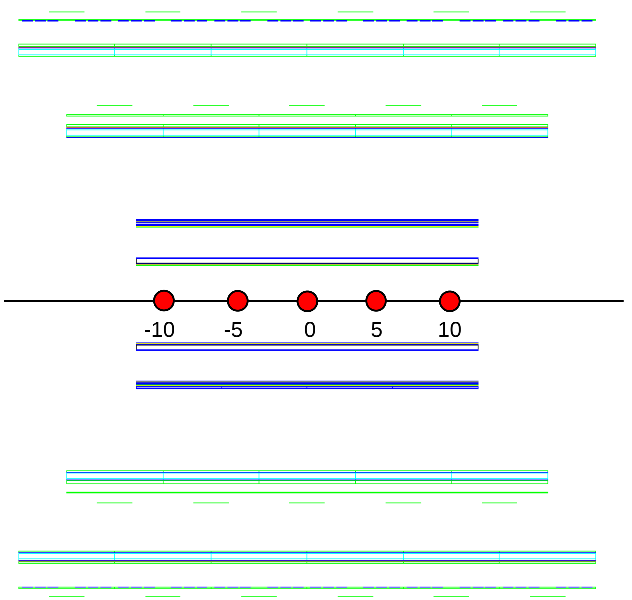




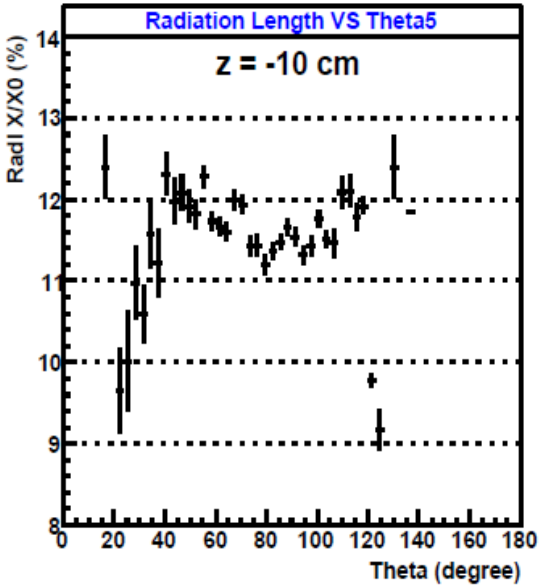


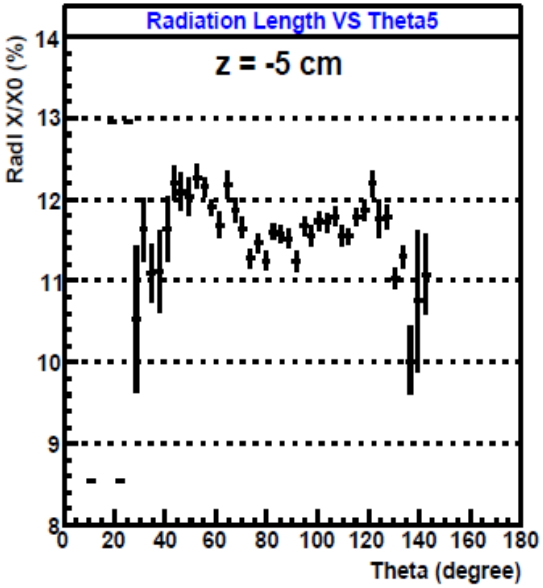


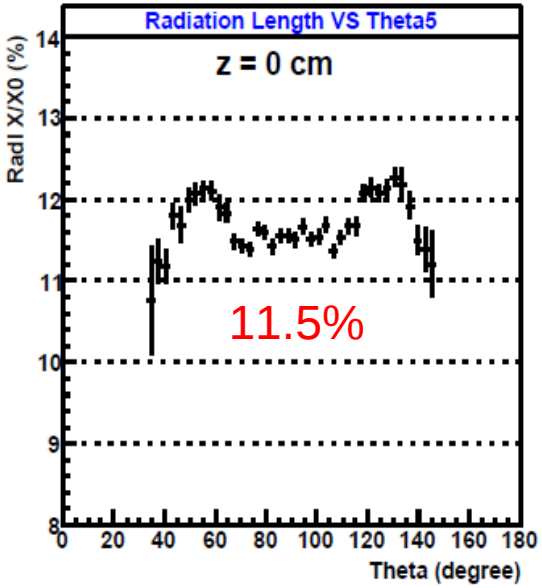


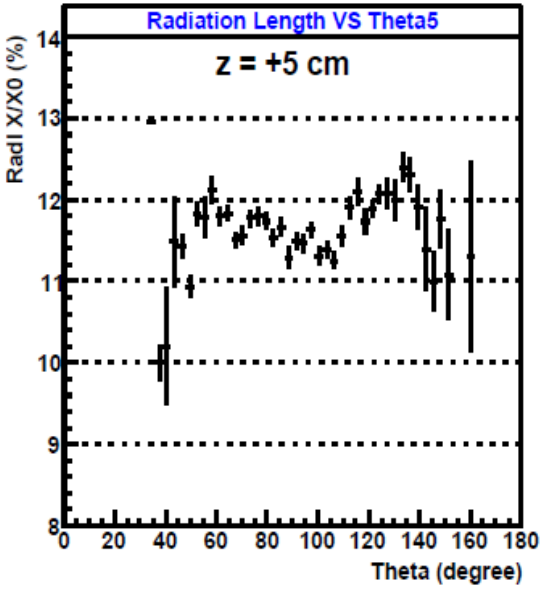


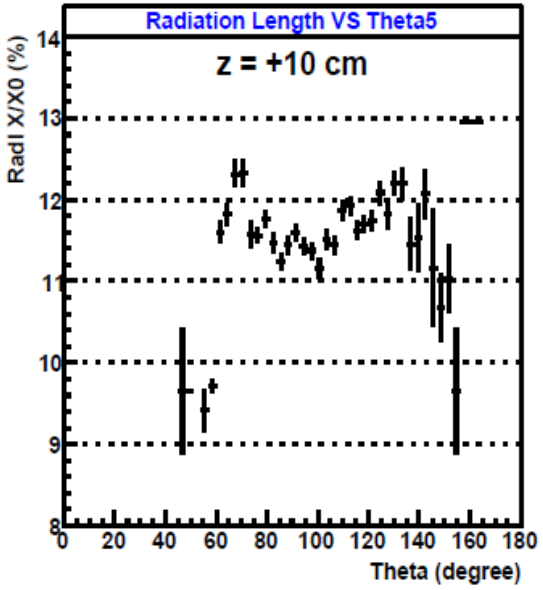
Radiation Length Distribution (Current Geometry)

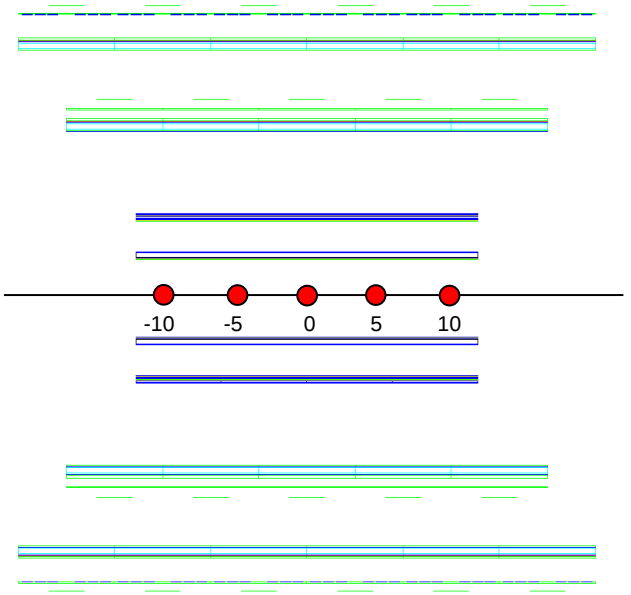




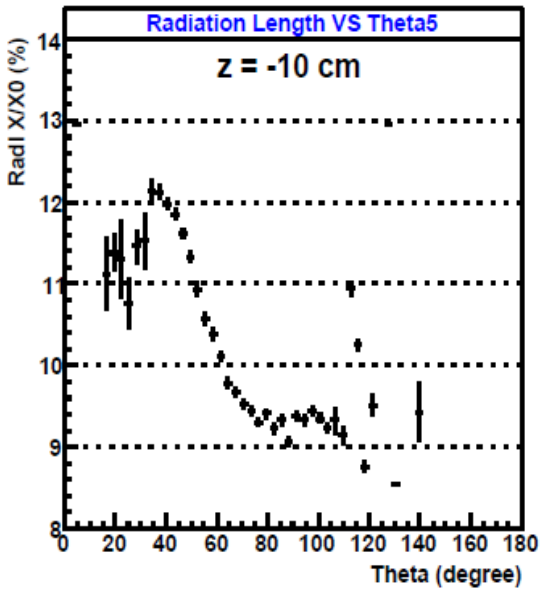


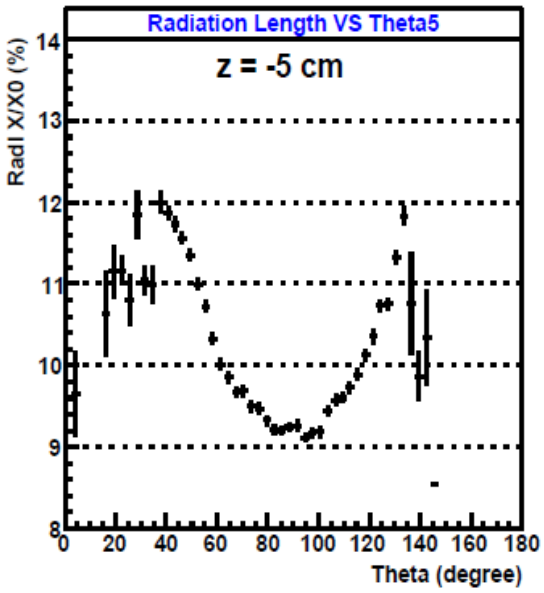


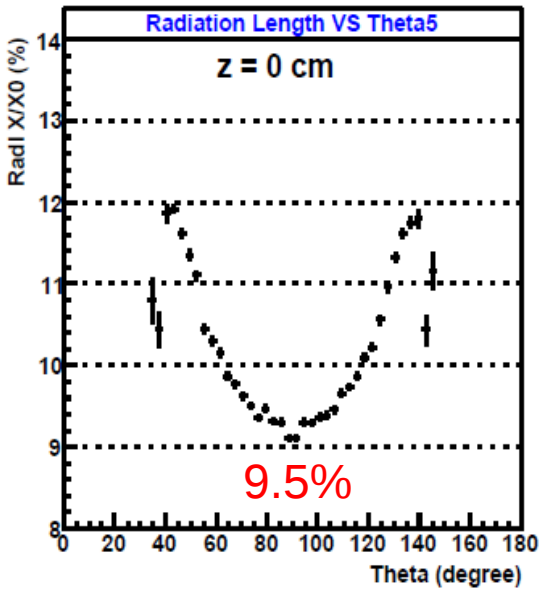


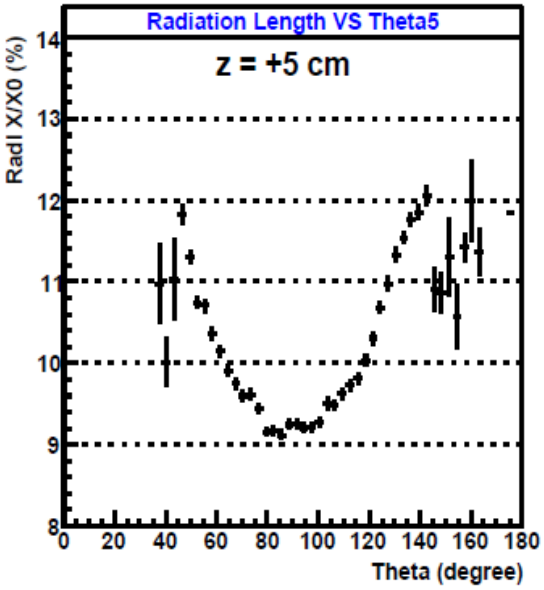


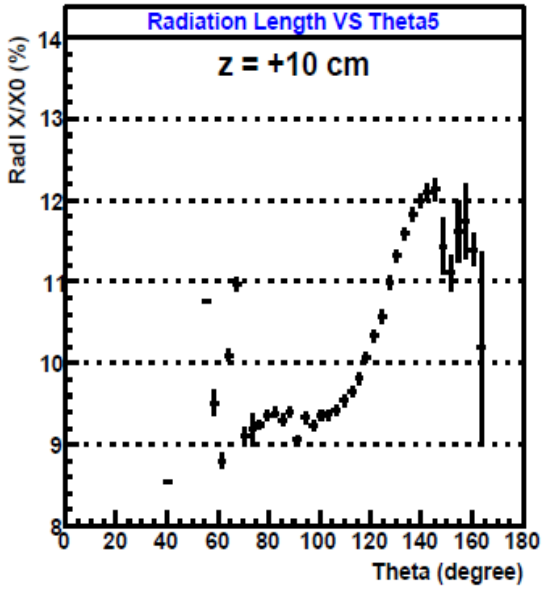
Radiation Length Distribution (Previous Geometry)

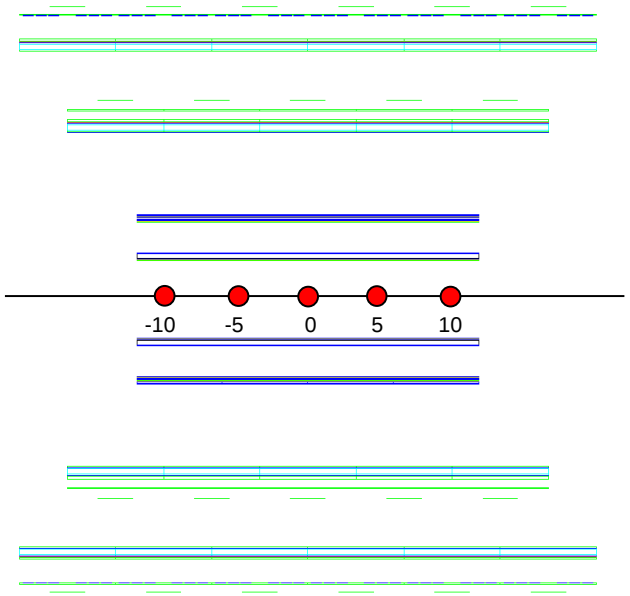




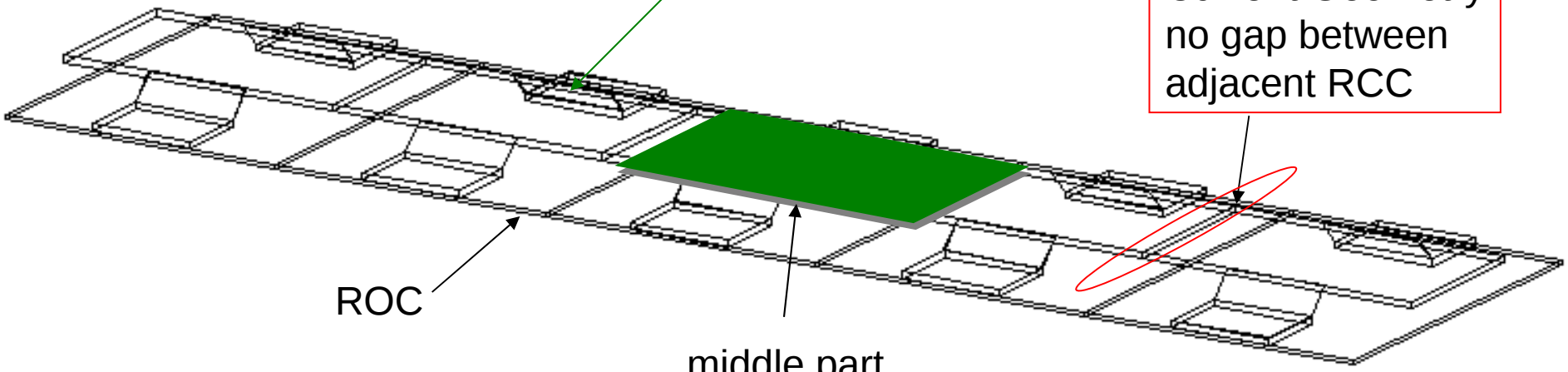








RCC Board


RCC board
should be changed
Current Geometry
no gap between
adjacent RCC
ROC
middle part
1484 um (G10)
+
27 um (Cu)
Uniformly
should be changed

Summary

- Implemented the correct material of cable, BUS and carbon foam.

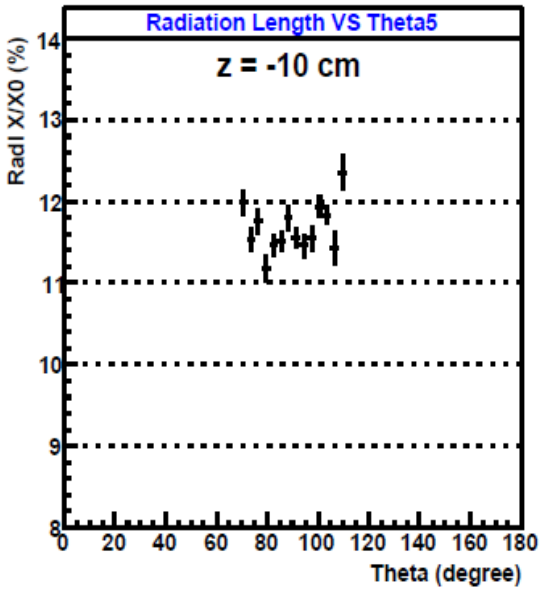
- Radiation length was calculated for different z vertex position.
    - Increasing 1 % per strip layer from the previous geometry.
    - Totally 11.5 %. This is 2 % increase from the previous.

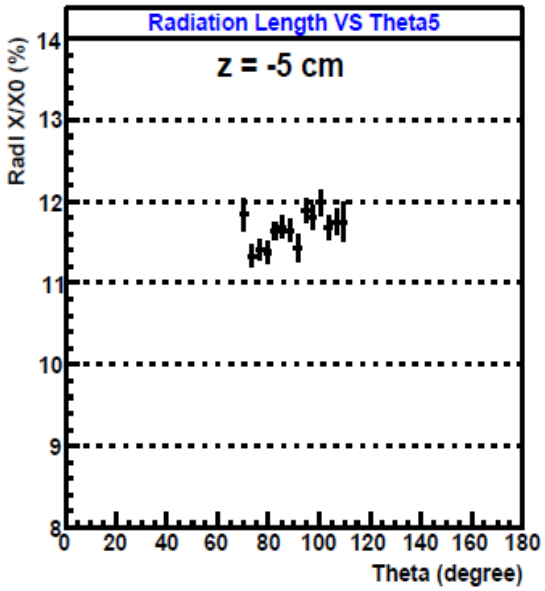
- Committed to CVS modified source codes on 29th Jun.

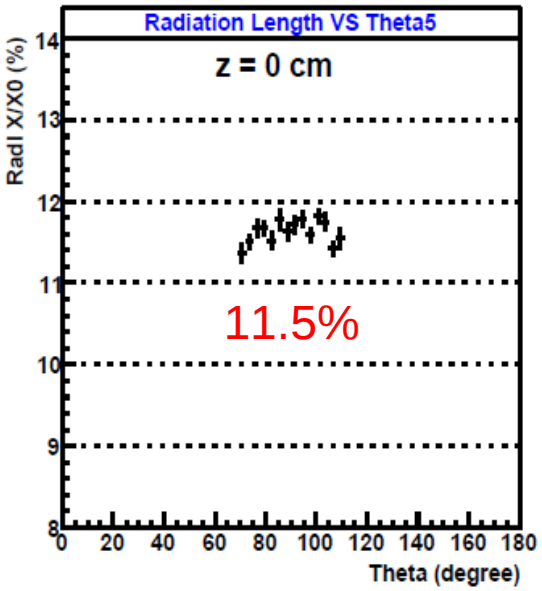
- Thickness of RCC should be changed.

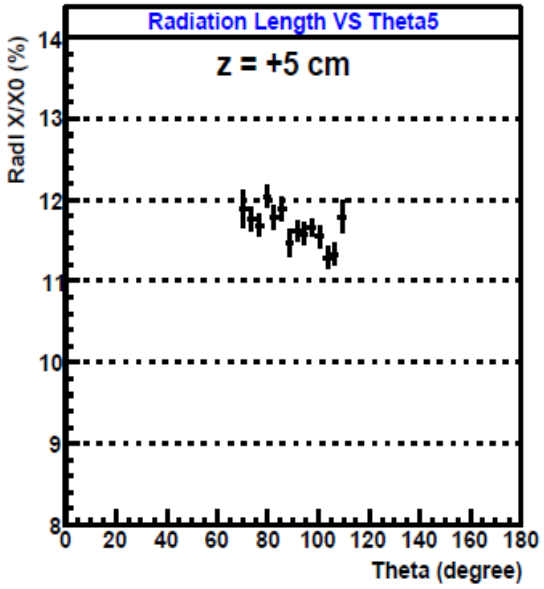
Backup

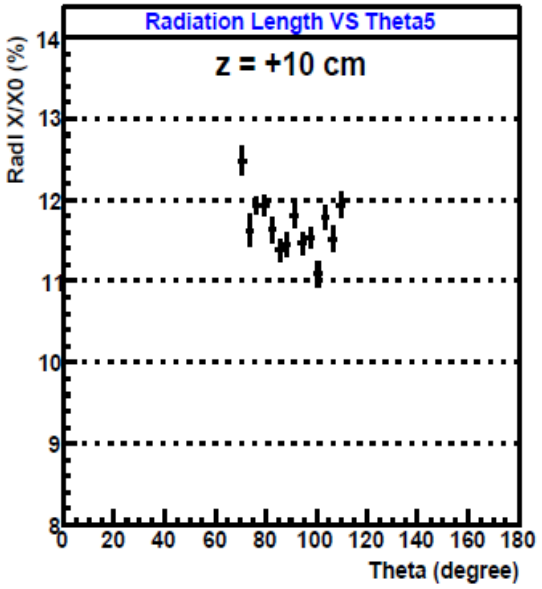
Radiation Length Distribution (CA Acceptance Region)

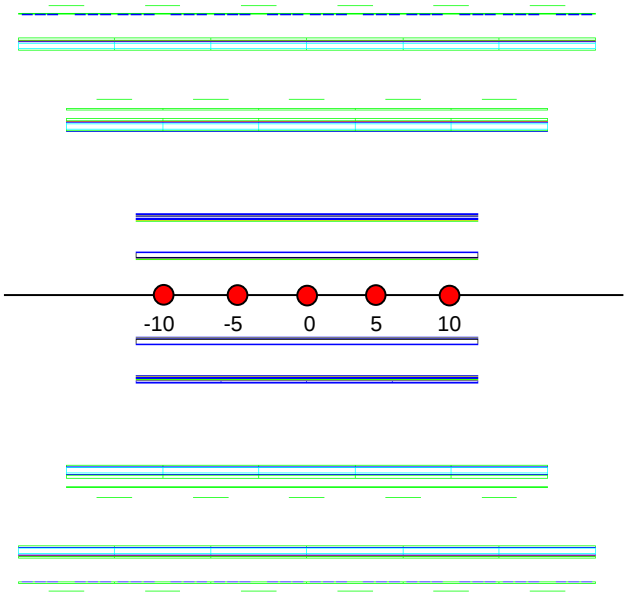












Beam Direction